HANFORD GROUNDWATER/VADOSE ZONE EXPERT PANEL

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SUBJECT: Closeout Report for May 13-15, 1999 Expert Panel Meeting

Gentlemen:

This letter constitutes the closeout report for the Groundwater/Vadose Zone Expert Panel meeting that was held in Richland on May 13-15, 1999. As you know, this was the fourth meeting of the full Panel since this Panel was formed. During the meeting, the agenda was designed to focus primarily on the status of four topics: (1) the Integration Project as a whole, (2) the Project's System Engineering effort, (3) the Project's System Assessment Capability (SAC), and (4) related Core Assessment Projects.

The information contained in this report provides our summary comments and recommendations resulting from the meeting. They are consistent with the comments provided to attendees at the final session of the May Panel meeting. While the Panel was not able to reach full consensus on all points made during the closeout briefing, the contents of this report have the support of the Panel members.

Objective of the Meeting

The Panel viewed this meeting as a chance to evaluate key Project activities. Our original overall objective was to assess qualitatively the extent to which the Project was progressing. The Panel as a whole had already experienced three previous meetings and had digested numerous documents on the Project. After nine months, it was time to see how the Project was moving from its promises to real progress; from its activities to solid accomplishments; and from its planned intentions to clear implementations. At the very least, it was time to assess whether Project efforts were moving in the proper direction.

While our objective for this meeting was not fully achieved, in retrospect, the meeting really proved to be an opportunity to improve two-way communications between the Panel and the Project and to set the stage for future interactions. Members of the Panel stressed that our objective is the success of the Project. However, as our collective independent judgments are exercised as a group, a level of programmatic and technical tension between the Panel and the Project is likely to result. As Panel Chairman, I am committed to having this tension channeled in productive directions that contribute to better decisions on behalf of the Project.

Take Home Message from the Meeting

The Panel wanted to be very explicit about conveying to you our "take home" message from the meeting. There are three key points:

1. After about nine months of working with the Integration Project, the Panel believes the potential benefits of integration at Hanford are more apparent to us than ever. However, this is still based more on our own reasoning and experience than on any definitive record of success by the Project. Moreover, the benefits are not yet universally apparent to senior management on site, or to key people at DOE Headquarters. This will require some attention.

2. The Panel sees many positive signs of Project people within both the Integration and the Core Projects working productively in an integrated fashion at the implementation level. We applaud this, even though all the requirements for success of the Integration Project at Hanford are not yet fully in place.

3. We recognize that integration is culturally and functionally difficult to implement at Hanford and that many barriers remain to be overcome before integration can be considered a demonstrated success. The programmatic, economic, technical, and cultural rewards from integration can be considerable, but great rewards do not come easily. They require perseverance, and the Panel believes your best work is still ahead.

Relationship Between the Panel and the Project

This meeting also proved to be valuable in helping to define the relationship and role of the Panel to the Project, particularly during meetings. On the first day of the meeting, many speakers experienced difficulty in completing their presentations before being interrupted by a Panel member with a comment or a question. From the Panel's point of view, this resulted for the most part from a lack of relevant briefing materials in advance

of the meeting. Some Panel members found it difficult to elicit the information they wanted in the short period of time available. This led to considerable dissatisfaction on the part of both the speakers and the Panel and required us to evolve a new mode of operating for the remainder of the meeting, as well as for future meetings.

This new operating mode is based on the principle of mutual responsibility and respect. Speakers are expected to provide presentations to the Panel that are substantive and to the point, and they are to allow sufficient time at the end of the presentation for questions and comments from the Panel. The Panel members will allow the speaker to complete their presentation before making comments or asking questions. In the future, the Panel will expect written material on each presentation in advance of a meeting. The written material must be more substantive than mere copies of the slides or overheads intended for presentation. Comprehensive documents or publications are preferred, but extended summaries may be substituted if documents are not available. We have made this point repeatedly and would like it to be absolutely clear at this time. The new protocol for conducting the meetings will only be effective if we have written documentation well in advance of the meetings

In a broader context, the May meeting also affirmed the importance of the Panel's continued involvement with stakeholders, Tribal nations, and regulators. We appreciated the opportunity to meet briefly during the meeting with the Environmental Restoration Committee of the Hanford Advisory Board, as well as to receive comments from several Tribal leaders and their representatives, regulators, and individual stakeholders. A clear and consistent underlying theme from all of these interactions is that, with few exceptions, each group or person is hopeful that "real" integration will eventually take place in the clean-up efforts at Hanford.

The Panel reaffirms our role as an independent reviewer of the merits of the Project and its work elements. As a panel, we do not consider ourselves to be peer reviewers of the Project's work products. Rather, in our role, the full Panel will focus on reviewing the Project's overall progress, plans, and elements of scope. Individual Sub-Panels will consider more focused technical or programmatic issues and will review them from a more detailed perspective. Regardless, the Panel is committed to reaching consensus about the activities we review or participate in, as well as the conclusions and recommendations we provide on improving the Project.

Integration at Hanford

As previously indicated, the Panel continues to see tremendous potential value in successful integration at Hanford, even while recognizing the cultural and other difficulties on site that make it difficult to implement. Developing an integrated and

seamless approach to cleaning-up the vadose zone/groundwater/river system at Hanford is consistent with the nature of the physical, chemical, biological, and socio-cultural issues that exist at the site. However, the organizational and conceptual boundaries that have historically existed on site as part of the DOE Complex are at variance with a fully integrated approach and are among the factors that make integration difficult to implement.

The Panel remains concerned that the Project has not yet made a convincing case for integration at Hanford to senior management on site and at DOE headquarters. In our review of the Project Specification document, the Panel identified the absence of a strong case for integration as a serious shortcoming. The recent management changes that have taken place at Hanford provide a new opportunity to reach senior management with a strong case.

There remain significant questions about the value of integration, as well as the true benefits it can realistically provide regarding cost savings, risk reduction, and ability to shorten the clean-up schedule. Thus, the Panel reiterates its recommendation that the Project develop a strong and convincing case for integration at Hanford. We encourage you to develop compelling answers to questions such as those listed below:

- What would successful integration look like?
- How would it impact fieldwork, modeling, etc.?
- What differences would integration make?
- How would one know integration had taken place?
- What would the benefits be to concerned parties?

Major Requirements for Project Success

In our deliberations during the meeting, the Panel developed our views on a set of major requirements that we believe must be satisfied for the Project to be successful. These requirements are given below and briefly discussed for your consideration and action:

1. Support of the Hanford Site Manager for the Project is essential.

   In this regard, we felt it was very significant that Keith Klein, the new Site Manager, participated in a conference call with the Panel during the meeting and joined the closeout briefing by phone.

2. Strong programmatic and intellectual leadership, support, and performance by individuals from multiple levels within contractor and government organizations is needed by the Project.

   Currently, the strongest evidence of integration on site is at the working level. Integration needs to be both a "bottom-up" as well as "top-down" priority.

3. Project personnel must convey clear objectives and progress to diverse audiences.

   The Project has a diverse set of audiences to which it is accountable. This is all the more reason why its objectives must be clearly articulated and understood. Of equal importance is that the Project must consistently and continuously convey the progress it is achieving.

4. There must exist clear benefits to Project participants.

   Unless Integration Project participants – and the Core Projects -- understand and accept there are clear benefits to them from successful integration, their support for the Project will ultimately wane.

5. The Project must display perseverance…perseverance…perseverance.

   This is necessary because all culture changes take time and continued efforts to accomplish them.

System Assessment Capability

As you know, the Panel has previously been critical of the Project's slow progress in developing the System Assessment Capability (SAC). Thus, we were generally encouraged with the presentations that were provided to the Panel during the May meeting on recent efforts to develop the SAC. While there is still a long way to go, it is quite apparent that there was important movement in the right direction over the three months preceding the meeting. More resources are being applied to the SAC, and there is evidence of more intellectual "energy" from the SAC team. The result is that during the meeting, the Panel received a more coherent picture about the SAC than ever before. The Panel strongly recommends not letting up on progress in this area, as it must make up for lost time.

One important area regarding the SAC that remains un-necessarily fuzzy is the stated set of objectives for this effort. Is the SAC primarily being developed to provide information

for clean-up decisions over the near term, or for site closure decisions over the long term? This must be more clearly defined. As the Panel has previously stressed, all work elements of the Project should first and foremost have their objectives linked with those of the overall Project.

Core Assessment Projects

The Panel regrets that available time did not permit more opportunity to hear about the core assessment projects that are supporting the Project. However, we would like to call out two areas for comment below.

Borehole Geophysical Logging The borehole geophysical logging activities that are being conducted represent an important source of information about the subsurface at Hanford. We appreciate that some efforts are underway to understand what all of the data mean, and we recognize that the data available can be considered a valuable source for data mining. However, we were disappointed that the data mining effort sounded more like it was just "data compilation." By the Panel's standard, data mining is an activity that means "data analysis and interpretation on an integrated basis." We did not see this type of effort being carried out. Thus, the Panel recommends that the Project assure that such an effort be conducted and fully integrated with the Project.

FY99 Tank Farm Borehole Program With respect to the FY99 Tank Farm Borehole Program, the information available to the Panel at the time of the meeting indicated that the process for selecting the location of the assessment hole to be drilled this year began as a reasonably-well documented DQO process. However, the DQO process broke down in its late stages such that member of the Panel believe the FY99 borehole is not satisfactorily justified as to purpose, location, drilling mode, or analytical requirements. The Panel is vitally interested that the drilling program proceeds this year and obtains the maximum information possible. Detailed progress in this area will be tracked on behalf of the Panel by one of the Sub-Panels that has been formed. This Sub-Panel held a meeting in March on the subject, which will be the subject of a separate report. We encourage all parties involved in planning and approving field investigations to continue to work to improve the process and the results.

Systems Engineering

On the first day of our meeting, the Panel was provided with a presentation about the systems engineering effort that has been initiated as part of the Project. We strongly support this initiative because it will be useful in organizing your Project approach, identifying interfaces and gaps in your current Project efforts, encouraging development of alternative solutions for problems, and making your decisions transparent.

However, it was clearly too early to show us your progress in this area. You should plan to present soon the results you are achieving using systems engineering in written form for discussion at a future meeting of the Panel.

Response to Comments on the Project Specification and Long Range Plan

Thank you for providing the Panel with the Project's responses to our previous comments and recommendations regarding the Project Specification and Long Range Plan. We do not intend to respond with any comments to your comments, as ours were offered in the spirit of items for the Project to consider in improving each of the documents. The Panel has the sense that you have accepted many of the comments that we made, and we look forward to seeing revised documents that are greatly improved.

Sub-Panel Progress Reports

At the meeting, members of the Panel who are heading up a Sub-Panel provided a brief progress report about the status of their efforts. As explained at the meeting, in planning for this closeout report, it was our original intention to include as attachments to this letter full reports from each of the Sub-Panels on their approved activities. Draft reports from each Sub-Panel have been circulated among the Panel members. However, by the Panel's own procedures, the Panel must reach a consensus on each Sub-Panel's final report before it can be released with the Panel's support. During the meeting, the Panel yielded valuable caucus time intended for reviewing Sub-Panel reports to previously unplanned (but valuable) meetings and teleconferences.

The Sub-Panel reports are not appended to this letter as originally planned but will be forthcoming within the next few days. The Panel will caucus on August 28-29 to work on finalizing the Sub-Panel reports and procedures, among other things. The information conveyed at the May meeting about the Sub-Panels is summarized below.

Field Investigations and Data Gathering Sub-Panel (Dr. Matuszek) A meeting of the Field Investigations Sub-Panel with staff of the Tank Waste Remediation Systems (TWRS)/Office of River Protection (ORP) Vadose Zone (VZ) Characterization Program was held March 22-23, 1999. The meeting appears to have been productive for both parties, providing for mostly frank and open discussions on technical matters, such as if, how, and where to drill the next test hole. DOE personnel, contractors, regulators, stakeholders, representatives from the Tribal Nations and panel members participated in the discussions.

Documents in support of the decision on where and how to perform the FY99 TWRS vadose zone characterization program were not available for review before or during the

meeting. Those documents only became available six weeks after the March meeting. Moreover, subsequent to the March Sub-Panel meeting the "preferred alternative" location for the proposed new borehole discussed in the meeting was changed. Therefore, the scope of the Sub-Panel report has been in flux as TWRS modifies its program. Thus, the Sub-Panel report will extend beyond that of an ordinary closeout report. It now includes the material forwarded to the Subpanel at the beginning of May, material and supporting presentations provided during the Expert Panel meeting of May 13 - 15, 1999 and additional electronic correspondence between the Sub-Panel Chair and DOE and contractor staffs during June and July.

From discussions during the Sub-Panel meeting, at least at the level of the meeting participants, it seems that the integration process is gaining some acceptance and that there is a lot of internal discussion on the means of achieving an integrated approach to solving some of the problems at Hanford. This bodes well for the future

A key issue for field investigations of the type necessary to the success of the TWRS vadose zone (VZ) characterization program is adequate funding. The Sub-Panel judges the proposed TWRS vadose zone characterization budget for FY99, as well as those presented for the next several FY, as unrealistically low to represent a minimum, credible characterization program.

The Sub-Panel strongly supports TWRS in its goal to proceed with at least one new borehole during FY99. Where and how remain at issue. The recommendation to move ahead is prompted by recognition of a variety of needs: scientific (nature of contaminants); technical (drilling method; slant-hole); modeling (sources; mobility); and, of course, political (make progress). The Sub-Panel does not support the RCRA-driven RFI-CMS alternative currently proposed, because of the likelihood of failing to intercept measurable concentrations of contaminants, the near impossibility of identifying a pathway downward, and the question of obtaining meaningful data cost effectively.

Peer Review Processes Sub-Panel (Dr. Conaway)

A robust, multi-level peer review system is one of the five "strategic" objectives of the GWVZ Integration Project ("the Project") described in the Project Specification. Such a system is also a stated priority of Undersecretary Ernest Moniz. To achieve success, the Project must ensure effective peer review systems are implemented. To be effective, peer review must be documented, expert, independent, external, and technical. By definition, internal reviews are not peer reviews because they are not independent.

The primary benefits of peer review are to enhance technical quality and credibility of the work. Technical quality is enhanced by identifying projects that lack technical merit or

are technically inferior to other feasible alternatives, and identifying specific ways to improve proposed or ongoing projects. Credibility is enhanced because the evaluation is external and independent, avoiding both the reality and the appearance of conflict of interest.

The day-long Peer Review Sub-Panel meeting on March 24 included seven separate sessions ranging from roughly 45 minutes to 90 minutes in length. The goal of the meeting was to get a general feel for what is currently being done in terms of peer review and encourage Integration Project personnel to start thinking about these issues.

The three morning sessions dealt with peer review processes in three Integration Project areas: S&T, SAC, and "other". The latter session included Alliance Contracting (also known as the PHMC Turndown Process, whereby tasks are automatically offered to certain contractors without competition) and briefly touched on several other topics including the roles of the Expert Panel and other peer review teams such as National Academy of Sciences and Washington Advisory Group.

The afternoon sessions included peer review issues related to three of the Core Projects, TWRS, 200 Area Remedial Assessments, and Hanford Site Groundwater Monitoring/Modeling, along with a closeout session. For the most part, the sessions related to the Core Projects focused on review mechanisms that might help protect Integration Project interests in those projects.

The dialogue was free-ranging with questions and answers flowing both directions. Many participants inside and outside the Integration Project were clearly enthusiastic about the Project, about existing levels of cooperation, and about the potential for success. Participants indicated that, in their view, cooperation was entirely adequate and interactions sufficiently flexible to ensure that the Integration Project and the Core Projects achieve success in their related endeavors.

There are numerous review processes in place in various areas of the Integration Project and Core Projects. On the other hand, there is no formal mechanism for coordinating and evaluating these processes so there are almost certainly gaps, inefficiencies, and other areas that need to be addressed, but that is not surprising at this stage of Project planning. Some sort of mechanism to implement, coordinate, and evaluate peer review systems is needed.

Interaction with Stakeholder and Tribal Nations (Hazard/Risk) Sub-Panel (Dr. Karr) This Sub-Panel held a one-day meeting at Hanford on April 30, 1999 to begin the process of exploring the status of risk as a framework for decision-making within the Project and to acquaint the Panel with the dimensions of risk as articulated by

stakeholders, Tribal Nations, regulators, DOE, and contractors. The meeting was an interactive session that provided an opportunity for the diverse groups in attendance to meet and discuss the many dimensions of their knowledge and concerns about risk. Many attendees express concern about the pace of Project activity and the minimal early efforts to place Project decisions in a broader risk framework. The meeting provided an opportunity for a sustained conversation about risks and how they should be dealt with in the Project. If the progress made in recent months by the SAC is to be sustained, it is critical that the profile of "risk" be increased in the SAC, as well as the Project in general.

As part of this Sub-Panel's activities, the Panel also discussed the value of stakeholder input to the Project from a wide variety of sources. We recognize the importance of the input of the Columbia River Comprehensive Impact Assessment (CRCIA) working group to the Project. We have previously recommended that the Project "incorporate the concepts and technical details of CRCIA modules 1 through 4." The requirement section of the CRCIA Report is being used as a template for the SAC. Active weekly meetings of a small focus group of regulators, stakeholders, and Native American Tribes over a two-year period contributed to the success of this Report. Continued input from these groups provides a valuable resource for the SAC and is important to eventual public and Tribal acceptance of clean-up decisions at Hanford. The Panel urges DOE to develop a process and mechanism to continue the active input of the CRCIA Team to the Project.

Panel Expectations for the Next Meeting

The next Panel meeting is scheduled for September 15-17, 1999. At this meeting, the Panel will expect the following:

- More emphasis on actual progress made by the Project
- More evidence on where integration is helping, as well as where it is not
- Thoughtful summaries in advance of the meeting on the set of selected topics to be discussed that describe
  - What is being done?
  - Why it is being done?
  - What beneficial outcomes are evident or expected?
  - Progress to date
- Reference to supporting documents and publications that can provide detailed information about discussion topics.

Closing Recommendations

In closing, the Panel recommends that the Project address three key issues on a high priority basis:

1. Developing a clear message on the benefits of integration at Hanford.

2. Satisfying the "Requirements for Project Success" identified in this report.

3. Encouraging Project personnel to focus on implementation and outcomes, not effort and activity.

We look forward to the next meeting and to continuing our interaction with you.

Sincerely yours,

Original signed by Edgar Berkey

Edgar Berkey, Ph.D.
Panel Chairman

cc: Dr. Ernest A. Moniz, Undersecretary, DOE
Dr. Carolyn Huntoon, Assistant Secretary for Environmental Management, DOE
Mr. Robert Alvarez, DOE Headquarters